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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/584,189	05/31/2000	Seung-Chan Bang	68268.000007	4177

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EXAMINER
BURD, KEVIN MICHAEL

ART UNIT	PAPER NUMBER
2611	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/584,189	BANG ET AL.	
	Examiner	Art Unit	
	Kevin M. Burd	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 October 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *See Continuation Sheet* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *83,88-94,96,97,117,123,124,152,153,155,156,158 and 161-163* is/are allowed.

6)☒ Claim(s) *180-256* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Continuation of Disposition of Claims: Claims pending in the application are 83,88-94,96,97,117,123,124,152,153,155,156,158,161-163 and 180-256.

1. This office action, in response to the request for continued examination (RCE) and the amendment filed 10/31/2007, is a non-final office action.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/31/2007 has been entered.

Response to Arguments

3. Applicant's arguments with respect to the claims have been considered but are moot in view of the new grounds of rejection.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 180, 181, 183-185, 187-190, 192-201, 203-205, 207-210, 212-219, 233, 234 and 237-244 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Miyake (US 5,546,424) in view of Ovesjo et al (US 6,108,369) further in view of Yoshida et al (US 5,734,647).

Regarding claims 180, 181, 200 and 201, Miyake discloses a method of spreading data using at least three channels. Miyake discloses the system is capable of supporting many channels where the number of channels is equal to the number of users (column 4, lines 45-50). The spreading process is performed with a spreading code assigned to each user (abstract). Figure 3 discloses the transmitter comprising a spreading code generator. The first spreading code generator produces spreading codes specific to individual users (column 5, lines 36-58). Since the system "systematically" assigns a user (channel) a specific spreading code, the system will "systematically" spread the specific channel with the specific spreading code. Miyake discloses "systematically" spreading the users but does not disclose which specific spreading codes are dedicated to the specific users. Ovesjo discloses a method for spreading data using at least three data channels (abstract). The signals to be spread have a plurality of pairs of in-phase and quadrature phase data. This is shown in figure 1A. The plurality of I signals are input to multipliers 10 and 12 where the quadrature signals are input to multipliers 14 and 16. Data and control information is encoded to data and control channels (column 3, lines 2-16). Code generating means generates spreading codes to the channels. These spreading codes are selected on the basis of data rates (column 5, lines 32-44). The spreading codes correspond to an orthogonal variable spreading code (column 5, lines 16-31). The spreading codes allocated to the data channels are represented in the code tree shown in figure 2. Ovesjo discloses this

creation of new techniques and systems for allocating spreading codes is done in a flexible manner that supports multicode transmissions and variable spreading factors and optimizes power efficiency (column 2, lines 57-61). For this reason, it would have been obvious for one of ordinary skill in the art at the time of the invention to combine the teachings of Ovesjo into the system and method of Miyake. Though the combination of Miyake and Ovesjo discloses transmitting a plurality of pairs of I and Q signals as shown in figure 1A of Ovesjo, the combination does not disclose allocating a spreading code to a first and second (I and Q) data channel. Yoshida discloses a transmitter that spread an I and Q channel by the same spreading code (column 8, lines 63 to column 9, lines 12 and figure 4A, elements 6, 8 and 34). It would have been obvious for one of ordinary skill in the art at the time of the invention to use the same spreading code for each I and Q pair as taught by Yoshida in the method of the combination of Miyake and Ovesjo to minimize the number and complexity of spreading codes used. This in turn would allow the data rate to be at a maximum. When three data channels are used, the first, second and third data channels are used.

Regarding claims 183, 184, 203 and 204, Ovesjo discloses a plurality of I and Q data channels in figure 1A.

Regarding claims 185, 189, 190, 205, 209 and 210, Ovesjo discloses spreading more than three data channels in figure 1A.

Regarding claims 187-188, 192-197, 207, 208 and 212-217, Ovesjo discloses a plurality of I and Q data channels in figure 1A.

Regarding claims 198, 199, 218 and 219, Ovesjo discloses generating the spreading codes shown in figure 2.

Regarding claims 233, 237 and 240, Miyake discloses a method of spreading data using at least three channels. Miyake discloses the system is capable of supporting many channels where the number of channels is equal to the number of users (column 4, lines 45-50). The spreading process is performed with a spreading code assigned to each user (abstract). Figure 3 discloses the transmitter comprising a spreading code generator. The first spreading code generator produces spreading codes specific to individual users (column 5, lines 36-58). Since the system "systematically" assigns a user (channel) a specific spreading code, the system will "systematically" spread the specific channel with the specific spreading code. Miyake discloses "systematically" spreading the users but does not disclose which specific spreading codes are dedicated to the specific users. Ovesjo discloses an apparatus for spreading data using at least three data channels (abstract). The signals to be spread have a plurality of pairs of in-phase and quadrature phase data. This is shown in figure 1A. The plurality of I signals are input to multipliers 10 and 12 where the quadrature signals are input to multipliers 14 and 16. Data and control information is encoded to data and control channels (column 3, lines 2-16). Code generating means generates spreading codes to the channels. These spreading codes are selected on the basis of data rates (column 5, lines 32-44). The spreading codes correspond to an orthogonal variable spreading code (column 5, lines 16-31). The spreading codes allocated to the data channels are represented in the code tree shown in figure 2. Ovesjo discloses this

creation of new techniques and systems for allocating spreading codes is done in a flexible manner that supports multicode transmissions and variable spreading factors and optimizes power efficiency (column 2, lines 57-61). For this reason, it would have been obvious for one of ordinary skill in the art at the time of the invention to combine the teachings of Ovesjo into the system and method of Miyake. Though the combination of Miyake and Ovesjo discloses transmitting a plurality of pairs of I and Q signals as shown in figure 1A of Ovesjo, the combination does not disclose allocating a spreading code to a first and second (I and Q) data channel. Yoshida discloses a transmitter that spread an I and Q channel by the same spreading code (column 8, lines 63 to column 9, lines 12 and figure 4A, elements 6, 8 and 34). It would have been obvious for one of ordinary skill in the art at the time of the invention to use the same spreading code for each I and Q pair as taught by Yoshida in the apparatus of the combination of Miyake and Ovesjo to minimize the number and complexity of spreading codes used. This in turn would allow the data rate to be at a maximum. When three data channels are used, the first, second and third data channels are used.

Regarding claims 234, 238 and 241-243, Ovesjo discloses a plurality of I and Q data channels in figure 1A.

Regarding claim 239, Ovesjo discloses spreading more than three data channels in figure 1A.

Regarding claim 244, Ovesjo discloses generating the spreading codes shown in figure 2.

5. Claims 182, 186, 191, 202, 206, 211, 220-232, 235, 236 and 245-247, are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyake (US 5,546,424) in view of Ovesjo et al (US 6,108,369) further in view of Yoshida et al (US 5,734,647) further in view of Stewart et al (US 6,009,091).

Regarding claims 182, 186, 191, 202, 206 and 211, the combination of Miyake, Ovesjo and Yoshida disclose the method stated above. The combination does not disclose the spreading code allocated to the control channel is represented by a code with a spreading factor of 256 and a code number of zero. Stewart discloses the DPCCH consists of known pilot symbols to support channel and SNR estimations and is typically spread by a factor of 256 (column 1, lines 41-47). It would have been obvious for one of ordinary skill in the art at the time of the invention to utilize the control code of Stewart in the combination of Miyake, Ovesjo and Yoshida to take advantage of the power and rate control used to control the data transmitted (column 1, lines 41-47).

Regarding claims 220, 221, 223, 224, 229 and 232, Miyake discloses a method of spreading data using at least three channels. Miyake discloses the system is capable of supporting many channels where the number of channels is equal to the number of users (column 4, lines 45-50). The spreading process is performed with a spreading code assigned to each user (abstract). Figure 3 discloses the transmitter comprising a spreading code generator. The first spreading code generator produces spreading codes specific to individual users (column 5, lines 36-58). Since the system "systematically" assigns a user (channel) a specific spreading code, the system will "systematically" spread the specific channel with the specific spreading code. Miyake

discloses "systematically" spreading the users but does not disclose which specific spreading codes are dedicated to the specific users. Ovesjo discloses an apparatus for spreading data using numerous three data channels (abstract). The signals to be spread have a plurality of pairs of in-phase and quadrature phase data. This is shown in figure 1A. The plurality of I signals are input to multipliers 10 and 12 where the quadrature signals are input to multipliers 14 and 16. Data and control information is encoded to data and control channels (column 3, lines 2-16). Code generating means generates spreading codes to the channels. These spreading codes are selected on the basis of data rates (column 5, lines 32-44). The spreading codes correspond to an orthogonal variable spreading code (column 5, lines 16-31). The spreading codes allocated to the data channels are represented in the code tree shown in figure 2. Ovesjo discloses this creation of new techniques and systems for allocating spreading codes is done in a flexible manner that supports multicode transmissions and variable spreading factors and optimizes power efficiency (column 2, lines 57-61). For this reason, it would have been obvious for one of ordinary skill in the art at the time of the invention to combine the teachings of Ovesjo into the system and method of Miyake. Though the combination of Miyake and Ovesjo discloses transmitting a plurality of pairs of I and Q signals as shown in figure 1A of Ovesjo, the combination does not disclose allocating a spreading code to a first and second (I and Q) data channel. Yoshida discloses a transmitter that spread an I and Q channel by the same spreading code (column 8, lines 63 to column 9, lines 12 and figure 4A, elements 6, 8 and 34). It would have been obvious for one of ordinary skill in the art at the time of the invention to use

the same spreading code for each I and Q pair as taught by Yoshida in the method of Miyake and Ovesjo to minimize the number and complexity of spreading codes used. This in turn would allow the data rate to be at a maximum. When three data channels are used, the first, second and third data channels are used. The combination of Miyake, Ovesjo and Yoshida disclose the method stated above. The combination does not disclose the spreading code allocated to the control channel is represented by a code with a spreading factor of 256 and a code number of zero. Stewart discloses the DPCCH consists of known pilot symbols to support channel and SNR estimations and is typically spread by a factor of 256 (column 1, lines 41-47). It would have been obvious for one of ordinary skill in the art at the time of the invention to utilize the control code of Stewart in the combination of Miyake, Ovesjo and Yoshida to take advantage of the power and rate control used to control the data transmitted (column 1, lines 41-47).

Regarding claims 225-227 and 230, Ovesjo discloses a plurality of I and Q data channels in figure 1A.

Regarding claims 222, 228 and 231, Ovesjo discloses generating the spreading codes shown in figure 2.

Regarding claims 235 and 245, the combination of Miyake, Ovesjo and Yoshida disclose the apparatus stated above. The combination does not disclose the spreading code allocated to the control channel is represented by a code with a spreading factor of 256 and a code number of zero. Stewart discloses the DPCCH consists of known pilot symbols to support channel and SNR estimations and is typically spread by a factor of 256 (column 1, lines 41-47). It would have been obvious for one of ordinary skill in the

art at the time of the invention to utilize the control code of Stewart in the combination of Miyake, Ovesjo and Yoshida to take advantage of the power and rate control used to control the data transmitted (column 1, lines 41-47).

Regarding claims 236, 246 and 247, Ovesjo discloses spreading more than three data channels in figure 1A.

6. Claims 248, 249 and 253-256 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyake (US 5,546,424) in view of Ovesjo et al (US 6,108,369) further in view of Yoshida et al (US 5,734,647) further in view of Ziemer et al (US 6,122,310).

Regarding claims 248, 249 and 253-256, the combination of Miyake, Ovesjo and Yoshida discloses the method and system stated above. The combination does not disclose a spreading code is selected to reduce the peak-to-average ratio (PAR). Ziemer discloses a method and apparatus for selecting a subset of spreading codes from a set of spreading codes for transmission (column 8, lines 38-48). This selection of spreading codes allows the system to maintain a lower peak to average power ratio than a traditional sum of codes as stated in column 8, lines 38-47. It would have been obvious for one of ordinary skill in the art at the time of the invention to combine the teachings of Ziemer into the combination to reduce the crest in the PAR and thereby allow for the use of less expensive power amplifiers.

7. Claims 250-252, are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyake (US 5,546,424) in view of Ovesjo et al (US 6,108,369) further in view of Yoshida

et al (US 5,734,647) further in view of Stewart et al (US 6,009,091) further in view of Ziemer et al (US 6,122,310).

Regarding claims 250-252, the combination of Miyake, Ovesjo and Yoshida discloses the method and system stated above. The combination does not disclose a spreading code is selected to reduce the peak-to-average ratio (PAR). Ziemer discloses a method and apparatus for selecting a subset of spreading codes from a set of spreading codes for transmission (column 8, lines 38-48). This selection of spreading codes allows the system to maintain a lower peak to average power ratio than a traditional sum of codes as stated in column 8, lines 38-47. It would have been obvious for one of ordinary skill in the art at the time of the invention to combine the teachings of Ziemer into the combination to reduce the crest in the PAR and thereby allow for the use of less expensive power amplifiers.

Allowable Subject Matter

8. Claims 83, 88-94, 96, 97, 117, 123, 124, 152, 153, 155, 156, 158 and 161-163 are allowed.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin M. Burd whose telephone number is (571) 272-3008. The examiner can normally be reached on Monday - Friday 9 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David C. Payne can be reached on (571) 272-3024. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KEVIN BURD
PRIMARY EXAMINER
Kevin M. Burd
1/10/2008